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New Hampshire Code of Administrative Rules
Env-Ws 364

PART Env-Ws 364 BACKFLOW PREVENTION

Statutory Authority: RSA 485

Env-Ws 364.01 Purpose.

(a) These rules are designed to regulate, control and prevent the contamination of public drinking water by the backflow of water or other liquids, gases, mixtures or substances into the distribution system of a public water supply system from a source or sources other than its intended Source.

(b) These rules are not intended to interfere with the progress of existing effective cross-connection control programs but rather to strengthen them and encourage uniformity across the state.

Source. (See Revision Note at chapter heading for Env-Ws 300) #6521, eff 6-4-97

Env-Ws 364.02 Applicability.

(a) All public water systems shall have a division approved, cross connection backflow prevention program where the system's population is 1,000 or more persons or an equivalent flow.

(b) Systems serving less than 1,000 people shall take appropriate action to prevent backflow and cross connections; however, an approved plan shall not be necessary.

Source. (See Revision Note at chapter heading for Env-Ws 300) #6521, eff 6-4-97

Env-Ws 364.03 Definitions. As used in this part, unless the content clearly indicates otherwise, the following words shall have the following meanings:

(a) "Air gap" means the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture or other device and the flood level rim of the receptacle.

(b) "Anti-backflow device" means a device or means to prevent backflow.

(c) "Approved source" means a source of water utilized by a public water system for distribution to the public for consumptive purposes and which is approved by the division for said use following a required and/or approved treatment process.

(d) "Backflow" means the flow of water or other liquids, mixtures or substances into the distribution pipes of a potable supply of water from any source or sources other than the intended Source.

(e) "Backflow preventer" means an anti-backflow device.

(f) "Backflow preventer with intermediate atmospheric vent" means a device having two independently operating check valves separated by an intermediate chamber with a means for automatically venting it to

the atmosphere. The check valves are force loaded to a normally closed position and the venting means is force loaded to a normally open position.

(g) "Backflow prevention device inspector - certified" means a person who has proven his competency to inspect and test backflow prevention devices, by the possession of a valid backflow prevention device certification issued by the new england water works association or other equivalent certification.

(h) "Back pressure" means pressure created by mechanical means or other means causing water, liquids or other substances to flow or move in a direction opposite to what is intended.

(i) "Back siphonage" means a backflow resulting from negative or reduced pressure in the distribution pipes of a potable water supply.

(j) "Barometric loop" means a loop of pipe rising at least thirty-five feet at its topmost point, above the highest fixture it supplies.

(k) "Check valve" means a self-closing device which is designed to permit the flow of fluids in one direction and to close if there is a reversal of flow.

(l) "Division" means division as defined in RSA 485:I-a,V, namely "the division of water, department of environmental services".

(m) "Contaminant" means contaminant as defined in RSA 485:I-a, III, namely "any physical, chemical, biological, or radiological substance or matter in water".

(n) "Containment" means that method and philosophy of backflow prevention which requires a backflow preventer at the water service entrance.

(o) "Cross-connection" means any actual or potential physical connection or arrangement between two otherwise separate systems, one of which contains potable water and the other which contains water of unknown or questionable safety and/or steam, chemicals, gases or other contaminants whereby there may be a flow of an unapproved water to a water supply.

(p) "Customer or owner" means any person who has legal title to or license to operate or habitat in a property at which a cross-connection inspection is to be made or at which a cross-connection is present.

(q) "High degree of hazard" means that if a backflow were to occur, the resulting effect on the water supply could cause illness or death if consumed by humans. The foreign substance may be toxic to humans either from a chemical, bacteriological or radiological standpoint. The effects of the contaminants may result from short or long-term exposure.

(r) "Low degree of hazard" means that if backflow were to occur, the resulting effect on the water supply would be a change in its aesthetic qualities. The foreign substance must be non-toxic to humans.

(s) "Person" means person as defined in RSA 485:1-a, XIII, namely "any individual, partnership, company, public or private corporation, political subdivision or agency of the state, department, agency or instrumentality of the United States or any other legal entity".

(t) "Potable water" means water from a source which has been approved by the division for human consumption.

(u) "Public water system" means public water system as defined in RSA 485:I-a,XV, namely "a system for the provision to the public of piped water for human consumption, if such system has at least fifteen service connections or regularly serves an average of at least twenty-five individuals daily at least 60 days out of the year."

(1) Such term shall includes:

a. Any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system; and

b. Any collection or pre-treatment storage facilities not under such control which are used primarily in connection with such system.

(2) Any water system which meets all of the following conditions is not a public water system:

a. Consists only of distribution and storage facilities (and does not have any collection and treatment facilities);

b. Obtains all of its water from, but is not owned or operated by, a public water system; and

c. Does not sell water to any person.

(v) "Reduced pressure backflow device" ("RPZ" or "RPBD") means a device incorporating two or more check valves and an automatically operating differential relief valve, located between the two checks, two shut-off valves, and equipped with necessary appurtenances for testing. See Env-Ws 364.06(e) for a description of the operation of a reduced pressure zone backflow prevention device.

(w) "Supplier" means any person who controls, owns or generally manages a public water supply system.

(x) "Vacuum breaker - atmospheric" means a device used to prevent back-siphonage and not to be used under static line pressure.

(y) "Water utility" means the suppliers of water.

Source. (See Revision Note at chapter heading for Env-Ws 300) #6521, eff 6-4-97

Env-Ws 364.04 Responsibilities of Division, Suppliers, Owners and Testers.

(a) The division shall have the following responsibilities relative to cross-connections:

(1) Establishment and administration of rules covering cross-connections;

(2) Review of inspection reports;

(3) Review and approval of the cross-connection control program of each public water system;

(4) Certification of backflow prevention device inspector; and

(5) Maintenance of a list of approved backflow prevention devices of various types.

(b) Each supplier of water shall be responsible for the safety of the public system under its jurisdiction.

(c) The supplier shall have the following specific responsibilities relative to cross-connections:

(1) The supplier shall not permit any cross-connection at any point within its system unless approved pursuant to a permit specifically issued by the supplier for the cross-connection;

(2) Any backflow prevention devices, required by the rules or policies of the division, or by the supplier, shall be of a model and construction approved by the supplier and the division;

(3) It shall be the responsibility of the supplier to ensure that backflow prevention devices are installed where required, tested for proper functioning upon completion of installation, and to see that the devices are inspected and tested at least semi-annually in high hazard situations and annually in low hazard situations, or more frequently as required by the supplier, and to determine that the devices meet applicable performance standards;

(4) It shall be the duty of the water supplier to ensure that a certified backflow prevention device inspector performs all inspection duties;

(5) It shall be required by the supplier, that the owner repair, overhaul or replace backflow prevention devices whenever they are found to be defective;

(6) Records of inspection, tests, repairs and overhauling shall be evaluated by the supplier and made a part of the supplier's permanent records for a period of at least five years;

(7) The supplier shall establish a time for completion of necessary corrections or removal of actual or potential cross-connections, taking into consideration the degree of hazard involved, and the time required to obtain and install the needed equipment. The supplier shall use every means at his disposal to obtain voluntary cooperation. However, if proper protection has not been provided after a reasonable period of time, following legal notification, the supplier shall physically separate the public water supply from the on-site piping system in such a manner that the two systems cannot again be connected by an unauthorized person; and

(8) The supplier shall deny water service to any premises where cross-connections exist until corrective action is taken. If necessary, water service shall be discontinued for failure to test or maintain backflow prevention devices in a manner acceptable to the supplier. If it is found that the backflow prevention device has been removed or by-passed or otherwise rendered ineffective, water service shall be discontinued unless

corrections are made immediately.

(d) The supplier and the service customer shall have the following joint responsibilities relative to cross-connections. Ensure that all cross-connections are tested and inspected on a regular basis, as specified by these rules and by the division.

(e) The owner of any permit for a cross-connection shall have the following responsibilities relative to cross-connections:

(1) Eliminate and disconnect any cross-connections that are maintained between their private system and the supplier's water system, unless deemed necessary by the water supplier and protected by a backflow preventer approved by the division for the degree of hazard associated with the cross-connection; see Table 364-2 Appendix I;

(2) Ensure the proper installation, operation and maintenance of an approved backflow preventer;

(3) Comply with all provisions of any permit and the supplier's cross-connection program;

(4) Apply for renewal of the permit when required by the supplier;

(5) Ensure the protection of the 'in-plant' water supply system by the installation of other approved backflow preventers where necessary. See Table 364-3, Appendix I;

(6) Have suitable arrangements made so that inspections can be made during regular business hours; and

(7) Maintain a spare parts kit and any special tools required for the removal of and re-assembly of the device.

(f) The certified backflow prevention device inspector shall have the following responsibilities relative to cross-connections:

(1) Make competent inspections and reports of the test of backflow preventers on forms approved by the supplier having jurisdiction;

(2) Competently use all of the equipment necessary to properly test and inspect to backflow preventers; and

(3) Perform the work and be responsible for the competency and the accuracy of all tests and reports.

Source. (See Revision Note at chapter heading for Env-Ws 300) #6521, eff 6-4-97

Env-Ws 364.05 Required Forms; Permits.

(a) All suppliers serving a population of more than 1,000 or those serving a population of less than 1,000 people, with an account which subjects the public water supply system to a cross-connection hazard, shall submit to the division:

(1) "Up-to-date" listings of each backflow preventer presently included in the supplier's cross-connection program as follows:

a. Two separate listings shall be submitted.

b. One listing shall be for all "high degree of hazard" situations and the other shall be for all "low degree of hazard" situations.

c. Form X-1: H and X-1: L, see Appendix I, or forms equivalent thereto, shall be used for these listings. See appendix I.

(2) The following information shall be provided:

a. Permit number of backflow preventer;

b. The owner's or business' name;

c. The location of the backflow preventer;

d. The manufacturer's name of the backflow preventer, size, model number and type;

e. The description of contaminants for which the backflow preventer is being employed; and

f. Frequency of testing.

(3) An annual summary inspection form submitted by the water supplier no later than February 1st of the year following the inspection year. Form X-2, or an equivalent thereof shall be utilized for this. See Appendix II.

(4) The annual summary inspection form shall contain the following information pertinent to each backflow preventer inspected:

a. Name of owner or business;

b. Location of device;

c. The date of each inspection performed during the year of reporting;

d. The result of each inspection;

e. If the inspection result is unsatisfactory, the inspection report shall also include the date at which the backflow preventer was found to be in compliance;

f. The name, certification, and certification number of the backflow prevention device inspector that performed the inspection and test of the device; and

g. Date, results of inspection, and if in failure, the date the system was found to be satisfactory in second test in that calendar period.

(5) The devices shall be inspected and tested at least semi-annually in high hazard situations and annually in low hazard situations, or more frequently as required by the supplier.

(6) An annual up-dated listing, including only those backflow preventers added or deleted during that year, shall be submitted to the division at the same time as the annual inspection report. Form X-1: H and X-1: L shall be utilized for this. See Appendix I.

(b) The following criteria shall control the granting of a permit for a cross connection:

(1) The supplier shall not permit cross-connections within the public water supply system unless deemed necessary by the supplier;

a. Criteria justifying a cross-connection shall include:

1. Inadequate fire protection capability of the public system; and

2. High process water needs.

(2) All permits shall be issued by the supplier and are subject to revocation for cause by the supplier and/or the division;

(3) The permits shall include the owner's name, location of device, manufacturer's name of the device, size and model number, description of contaminants, the testing frequency, and permit number;

(4) All permits shall be issued and renewed by the supplier;

(5) It shall be the supplier's responsibility to review the degree of hazard of the cross-connection and assign the proper backflow prevention device to a specific cross-connection and designate this backflow prevention device on the specific cross-connection permit application;

(6) The owner shall apply for a cross-connection permit on the appropriate forms provided by the supplier;

(7) Permits shall be renewed every five years or whenever a change occurs in the classification of hazard, as determined by the supplier and/or the division, and/or backflow prevention device; and

(8) Permits shall be non-transferable.

(c) Exemptions shall be granted in the following categories:

(1) Any existing backflow preventer shall be allowed to continue in service unless:

a. The supplier considers the condition of any portion of the device to be such that replacement should be made; or

b. The degree of hazard is changed so as to supersede the effectiveness of the present backflow preventer as indicated in Table 364-1 or Env-Ws 364.06(b).

(2) Water systems, with the approval of the division, may grant one or more exemptions for existing devices from this rule to the customer, if:

a. The exemption shall not result in an unreasonable risk to the public health; and/or

b. The public water system or owner is unable to comply with the rule due to compelling factors, not including economic factors.

(3) An exemption shall not alter the degree of hazard classification of the cross-connection. Each exemption shall also be conditioned on monitoring, testing, analyzing or other requirements to ensure the protection of the public health, and shall include a compliance schedule.

Source. (See Revision Note at chapter heading Env-Ws 300) #6521, eff 6-4-97

Env-Ws 364.06 Approved Backflow Prevention Devices.

(a) Only backflow devices approved by the division shall be used.

(b) A list of approved backflow prevention devices shall be maintained and available through the division. All approved devices shall allow for accurate testing so as to allow verification of their performance.

(c) Only the following types of backflow preventer devices in Table 364-1 below shall be used for the containment of on-premise hazards for low and high hazard situations respectively:

Table 364-1

Acceptable Devices for Types of Hazards

Low Hazard	High Hazard
1. Air gap	1. Air gap
2. Atmospheric vacuum breaker (where bacteria hazards are not present)	Reduced pressure/Backflow device
3. Pressure vacuum breaker	3. Or combination of the above

4. Double check valve assembly

5. Reduced pressure backflow device

6. Or combination of the above

(d) A backflow prevention device shall not be installed in locations where the device is subject to corrosive fumes, grit, sticky or abrasive liquids. The device shall be protected against flooding or mechanical abuse. All devices shall be installed so they are easily accessible for testing and repair. They shall not be built into or close to walls or other obstructions.

(e) An RPZ device as defined in Env-Ws 364.03 shall operate in the following manner:

(1) The device shall operate to maintain the pressure in the zone between the two check valves at pressure less than that on the public water supply side of the device.

(2) At cessation of normal flow, the pressure between the check valves shall be less than the supply pressure.

(3) In case of leakage of either check valve, the differential relief valve shall operate to maintain this reduced pressure by discharging to the atmosphere.

Source. (See Revision Note at chapter heading for Env-Ws 300) #6521, eff 6-4-97

Env-Ws 364.07 Program Documentation.

(a) Each public water system shall file with the division of water a copy of their legally adopted cross-connection control.

(b) Any subsequent revisions to an approved backflow prevention control program shall be filed with the division of water.

Source. (See Revision Note at chapter heading for Env-Ws 300) #6521, eff 6-4-97

Env-Ws 364.08 Appendix. Water utilities shall maintain a list of the following information pertaining to its backflow prevention program.

(a) A list shall be maintained of high hazard cross connection locations. This list is identified as Form X-1 (H).

(b) The elements of this list shall include:

(1) Owner of business;

(2) Location of device;

(3) Type of device;

(4) Size;

(5) Name and model #;

(6) Permit #;

(7) Description of contaminant; and

(8) Testing frequency.

(c) A list shall be maintained of low hazard cross connection locations. This list is identified as Form X-1 (L).

(d) The elements of this list shall include:

(1) Owner of business;

(2) Location of device;

(3) Type of device;

(4) Size;

(5) Name and model #;

(6) Permit #;

(7) Description of contaminant; and

(8) Testing frequency.

(e) A list shall be maintained of the frequency of inspection and the results of inspections.

(f) The elements of this list shall include:

(1) Name of business;

(2) Location of device;

(3) Date of first inspection;

(4) Sat(isfactory);

(5) Uns(satisfactory);

(6) Date rendered satisfactory;

(7) Date of second inspection;

(8) Sat(isfactory);

(9) Uns(isfactory); and

(10) Date rendered satisfactory.

Source. #6521, eff 6-4-97 (See Revision Note at chapter heading for Env-Ws 300)